

WHAT IS CLAIMED IS:

Claim 1. A compound selected from the class defined by the formulae:

$$\text{p-Glu-His-Trp-Ser-Tyr-D-His(im-Bzl)-Leu-Arg-R}$$
 and its nontoxic salts, and

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$$\text{X}^1\text{-p-Glu-His(X}^2\text{)-Trp-Ser(X}^3\text{)-Tyr(X}^4\text{)-D-His(im-Bzl)-Leu-Arg(X}^5\text{)-Pro-X}^6$$

wherein R is selected from the group consisting of Pro-Gly-NH₂ and Pro-NH-CH₂-CH₃;

10 X^1 is either hydrogen or an α -amino protecting group;

X^2 is a protecting group for the imidazole nitrogen atom selected from the group consisting of Tos, benzyl, trityl, 2,2,2-trifluoro-1-benzyloxycarbonylaminoethyl, 2,2,2-trifluoro-1-tert-butyloxycarbonylaminoethyl and 2,4-dinitrothio-
15 phenyl;

X^3 is a protecting group for the alcoholic hydroxyl group of Ser selected from the group consisting of acetyl, benzoyl, tetrahydropyranyl, tert-butyl, trityl, benzyl and 2,6-dichlorobenzyl;

20 X^4 is a protecting group for the phenolic hydroxyl group of Tyr selected from the group consisting of tetrahydropyranyl, tert-butyl, trityl, benzyl, benzyloxycarbonyl, 4-bromobenzyloxycarbonyl and 2,6-dichlorobenzyl;

25 X^5 is protecting group for the nitrogen atoms of Arg selected from the group consisting of nitro, Tos, benzyl-oxycarbonyl, adamantyloxycarbonyl, and BOC, or is hydrogen; and

X^6 is selected from the group consisting of dimethylamine, alkylamine of 1 to 5 carbon atoms, phenethyl-
30 amine, O-CH₂-[resin support], Gly-O-CH₂-[resin support], and Gly-NH [resin support].

Claim 2. A compound in accordance with Claim 1 wherein R is Pro-Gly-NH₂.

Claim 3. A compound in accordance with Claim 1 wherein R is Pro-NH-CH₂-CH₃.

Claim 4. A method for regulating fertility and the production of gonadotropins and sex steroids in male and female mammals comprising administering an effective amount of a peptide having the formula:

5 P₁ p-Glu-His-Trp-Ser-Tyr-D-His(im-Bzl)-Leu-Arg-R,
wherein

P₁ R is selected from the group consisting of Pro-Gly-NH₂ and Pro-NH-CH₂-CH₃, or a nontoxic salt thereof.

Claim 5. A method in accordance with Claim 4 wherein R is Pro-Gly-NH₂.

Claim 6. A method in accordance with Claim 4 wherein R is Pro-NH-CH₂-CH₃.

END